

be more correct to exclude this case, and say that of 17 operations, 1 died of pyæmia.

In youth, 45 operations are recorded, of which 6 died, or 13.3 per cent.

In adult age, 80, 31 of which died, or 38.7 per cent.

In old age, 6, 2 of which died, or 33.3 per cent.

Thus we see that in children amputation is ordinarily successful; the only death recorded, excluding the case above referred to, was in a strumous boy on the limits of the prescribed age, with abscess in the knee-joint. In youth the proportion of deaths is far less than in adult age. In old age, there is no reason to conclude that the patients, *cæteris paribus*, bear the operation worse than adults, but our figures are too small to draw any conclusions.

The Causes of Death.—The total number of deaths was 41. The assigned causes of death are as follows:—

Pyæmia	in 24 cases, or 58.5 per cent.
Exhaustion (without hemorrhage)	in 7 “ or 17 “
Exhaustion with secondary hemorrhage in	4 “ or 9.7 “
Visceral disease	in 4 “ or 9.7 “
Diffuse inflammation and gangrene	in 1 “ or 2.4 “
Other injuries	in 1 “ or 2.4 “

In 9 cases no post-mortem examination was made; of these the causes assigned from the symptoms during life, were—pyæmia in 5 cases, exhaustion in 3, and secondary hemorrhage in 1.

Thus, it will be seen that in our experience, pyæmia occupies a much larger space as a cause of death, than in Mr. Bryant's table: while exhaustion (without secondary hemorrhage) is proportionately diminished, appearing as 17 per cent. only, while in the Guy's Hospital records it stands for 33 per cent. of the fatal cases. In Mr. Bryant's paper, no mention is made of the authority on which his statements rest; whether all or what proportion were examined after death, whether the cases produced include all the operations during a certain period, and if so, what period, with other interesting particulars. Thus, in this instance, it would require very strong evidence to convince us that one out of every three fatal cases of well-selected amputations died of mere exhaustion.

If we separate the amputations, on Mr. Bryant's plan, into “pathological,” “amputations of expediency,” “primary,” and “secondary,” we find the causes of death in each class as follows:—

Of 94 “pathological amputations,” 24 died, the causes of death being—

Pyæmia	14 or 58.3 per cent. of the fatal cases.
Exhaustion	3 or 12.5 “
Secondary hemorrhage	2 or 8.3 “
Visceral disease	4 or 16.6 “
Gangrene from diffuse inflammation	1 or 4.2 “

Of 21 “amputations of expediency,” 5 died—3 of pyæmia, or 60 per cent.; 1 of exhaustion, or 20 per cent.; and 1 of secondary hemorrhage, or 20 per cent. of the fatal cases.

Of 25 primary amputations, 9 died—5 of pyæmia, 55.5 per cent.; 1 of secondary hemorrhage, or 11.1 per cent.; 2 of shock, or 22.2 per cent.; and 1 of other injuries, or 11.1 per cent.

Of 9 secondary amputations, 3 died—2 of pyæmia, or 66.6 per cent.; and 1 of exhaustion, or 33.3 per cent.

23. *Excision of the Tendons in Amputation of the Forearm at the Lower Third.*—MR. HUGH CROSKERY communicated to the Surgical Society of Ireland (April 13, 1861) the following interesting observations on this subject.

The thousand dangers that have, in times past, been mentioned as being likely to occur after flap amputations at the lower third of the forearm, still continue to influence many surgeons of eminence to discard this operation altogether; and many limbs are now removed near the elbow, where a useful member might have been saved. This subject is still, unhappily, a matter of controversy, and the probability of the occurrence of the untoward results

which actuated Larrey and others to prefer the removal of the limb at the upper third, is still found to be a stumbling-block to conservative surgery, and to influence many of the surgeons of our public institutions to sacrifice large portions of healthy tissue.

I communicated, in the beginning of 1859, a short paper on this subject to the Surgical Society, in which I described "a case of amputation of the right forearm at the lower third, in which the tendons were drawn down and divided an inch above their termination in the flaps;" and I brought forward that case, in the hope that the great success which followed the plan adopted would induce others to make further trial of it, and to communicate the results of their experience of it to the profession. I performed this operation, for the first time, in October, 1858, and a short time after I had communicated it to the Surgical Society, Mr. Alford, surgeon to the Taunton and Somerset Hospital, operated in a similar way, and published the results in the *Medical Times and Gazette* of Feb. 4th, 1860. In both these cases a useful limb was preserved, and the stump healed in a very short space of time. The subject of my case has been my own servant for the past three years, and he can use his handless forearm with wonderful facility.

I have lately had further opportunity for testing the value of this mode of amputation, and I have now no hesitation in strongly recommending its general adoption. It is easily performed. Two flaps are made after the process of Vermeil—the palmar by transfixion, and the dorsal by cutting in a semicircular course from the tegumentary surface, the flap being then dissected back. After the limb has been separated in the usual way and the arteries have been tied, the soft parts are drawn well back by an assistant, when the tendons will protrude. Each tendon is then grasped with the rasped blades of a spring-forceps, drawn out, and cut off on a level with the flap. The flaps, which should be two inches in length, of equal size, and with broad angles, are then brought together with sutures and adhesive straps, and a roller is carefully and evenly applied with the view to the obliteration of the cavities left by the retraction of the tendons. The bandage should be brought up as far as the edges of the flaps, and the face of the stump should not be covered by it, but merely dressed with wetted lint. The flaps will be found to adapt themselves accurately together; and to furnish all that is requisite for immediate union. The stump will be healed completely within three weeks, and the bones will be protected by a firm cellululo-integumentary cushion.

The advantages of this operation are very great, and I do hope that other surgeons will give it a trial, and that it will be found to be as successful in their hands as it has been in mine. I have been, I believe, the first to bring it to the notice of the profession, if I have not been the first to practice it; and in bringing it to the notice of such a learned body as the Surgical Society of Ireland, my object is to have its merits, or demerits, discussed by a competent tribunal. I have found it to succeed in my own practice, and I am confident of its success in other and more skilful hands than mine.—*Dublin Medical Press*, May 1st, 1861.

24. *Extirpation of the Shaft of the Tibia. Complete Recovery.*—The subject of this operation was a young man who had been affected with necrosis of the tibia for two years, and whose leg was, consequently, in such a disorganized condition that some of the most eminent Parisian surgeons, amongst whom it will suffice to mention M. Velpeau, had pronounced amputation at the thigh to be necessary. The performance of sub-periosteal extirpation of the substance of the tibia saved this patient, however, from the alternative of an operation which, according to French statistics, results in death in sixty per cent. of the cases in which it is resorted to, and has restored the limb to almost its original integrity of form, flexibility, and strength.

The portion of bone removed by M. Maisonneuve, under whose care the patient had been placed, was more than twelve inches long, an inch and a half in diameter at its upper end, and an inch at its lower extremity. Its surfaces were smooth and compact inferiorly, roughened and hollowed out superiorly.

The sequelæ of this operation were remarkable for their simplicity. The